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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

NGUYEN, KIMBINH T

ART UNIT	PAPER NUMBER
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2671

DATE MAILED: 12/27/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/002,148

Applicant(s)

SAKAKIBARA, KUNITERU

Examiner

Kimbinh T. Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 November 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4,6,7,9-16,18 and 20-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4,6,7,9-16,18 and 20-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 11/05/04 has been entered.
2. Claims 1-4, 6, 7, 9-16, 18 and 20-22 are pending in the application.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 2, 6, 11, 13, 14, 18 and 22 are rejected under 35 U.S.C. 102(b) as being anticipated by Bell et al. (5,550,937).

Claim 1, Bell discloses an acquiring portion for acquiring a first original data set and second original data set, the first original data set and the second original data set respectively representing first and second original data set respectively representing first and second original images, each of the first and second original images being obtained by imaging a same object from differing observation points (Fig. 1;

column 5, lines 43-62); a resolution multiplication unit for converting the first original data set and the second original data set to a first low resolution data set and a second low resolution data set respectively (Fig. 2; column 5, lines 63 - column 6, line 2); an extracting portion for extracting high precision areas from the first original data set (the first base image 21B is resampled to extract pixel data values contained within respective ones of the first neighborhoods (col. 7, line 10 through col. 8, line 10; figs. 6 and 7); a three-dimensional generating portion for generating a three-dimensional data set of the object using the first original data set and the second original data set and the first low resolution data set and the second low resolution data set (col. 4, lines 1-9); wherein the three-dimensional data set comprises a first part and a second part, the first part is generated using the first original data set (21) and second original data set (22), and the second part is generated using the first low resolution data set and the second low resolution data set (figs. 6-8; col. 7, line 36 through col. 8, line 61). Note that the collection of three-dimensional cross-correlation surfaces are iteratively generated starting with the lowest resolution version data set and using increasingly higher resolution versions of the captured data up to and including the original data set); and the first part of the 3D data set comprises the extracted high precision areas (resampling or filtering; col. 8, lines 46-61).

Claim 2, Bell discloses an extracting portion for extracting a first partial image from the first original image (column 7, lines 36-49); and a seeking portion for seeking corresponding points to points in the first partial image within the second original image (the second based image 21B is resampled to extract pixel data values contained within

respective ones of the first neighborhoods; col. 8, lines 6-21); wherein the first part of three-dimensional data set is generated by the sought corresponding points (resampling; column 8, lines 46-61).

Claim 6, Bell discloses a device for inputting multiple images having a first resolution from different viewpoints of an object (Fig. 1., column 5, lines 43-62), a converter for performing a resolution conversion of each the input multiple images to generate converted images having a second resolution that is different that the first resolution (Fig. 2; column 5, lines 63 - column 6, line 2), a characteristic area extraction unit for detecting characteristic areas of the object from at least one on the input multiple images (column 7, lines 36-49); and a three-dimensional construction unit for constructing three-dimensional data of the object by using data from input images for the characteristic areas of the object and by using data from the converted images for remaining areas of the object (column 8, lines 6-61); wherein the first resolution is higher than the second resolution (Fig. 2., column 5, line 63 - column 6, line 2).

Claim 11, Bell discloses wherein a device for inputting images that include images obtained from different viewpoints of an object and having different resolutions (Figs. 1 and 2; column 5, line 42- column 6, line 2); a characteristic area extraction unit for selecting specific areas from at least one image (column 7, lines 36-49); and a three-dimensional construction unit for reconstructing three-dimensional data of the object by using, from among said multiple images having different resolutions, high-resolution images for the selected areas, and low-resolution images for the non-selected areas,

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and by seeking correspondence between the images obtained from different viewpoints (column 7, lines 37-49; column 8, lines 46-61; Fig. 9).

Claim 13, Bell discloses acquiring a first original data set and second original data set, the first original data set and the second original data set respectively representing first and second original images, each of the first and second original images being obtained by imaging a same object from differing observation points (Fig. 1, column 5, lines 43-62); converting the first original data set and the second original data set to a first low resolution data set and a second low resolution data set respectively (Fig. 2; column 5, lines 63 - column 6, line 2); extracting high precision areas from the first original data set (column 7, lines 36-49; Fig. 7); generating a three-dimensional data set of the object using the first original data set and the second original data set and the first low resolution data set and the second low resolution data set; wherein the three-dimensional data set comprises a first part and a second part, the first part is generated using the first original data set and second original data set, and the second part is generated using the first low resolution data set and the second low resolution data set (Fig. 9; column 8, lines 6-61); the first part of three-dimensional data set comprises the extracted high precision areas (column 8, lines 46-61).

Claim 14, Bell discloses extracting a first partial image from the first original image (column 7, lines 36-49); and a seeking portion for seeking corresponding points to points in the first partial image within the second original image; wherein the first part of three-dimensional data set is generated by the sought corresponding points (column 8, lines 46-61).

Claim 18, Bell discloses inputting multiple images having a first resolution from different viewpoints of an object (Fig. 1., column 5, lines 43-62), performing a resolution conversion of each the input multiple images to generate converted images having a second resolution that is different than the first resolution (Fig. 2; column 5, lines 63 - column 6, line 2); detecting characteristic areas of the object from at least one on the input multiple images (column 7, lines 36-49); constructing three-dimensional data of the object by using data from input images for the characteristic areas of the object and by using data from the converted images for remaining areas of the object (Fig. 9; column 8, lines 6-61); wherein the first resolution is higher than the second resolution (Fig. 2; column 5, line 63 - column 6, line 2).

Claim 22, Bell discloses a program for generating three-dimensional data according to the method of claim 13 (column 5, lines 36-42).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 3, 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bell as applied to claims above further in view of Akimoto et al. "Automatic Creation of 317 Facial Models" (Akimoto).

Claim 3, Bell discloses a three-dimensional reconstruction portion for producing three-dimensional position data using the first low resolution data set and the second low resolution data set (column 8, lines 6-61). Bell does not explicitly disclose a standard model fitting portion for fitting a standard model to the produced three-dimensional position data to generate the three-dimensional data set. Akimoto discloses a standard model fitting portion for fitting a standard model to the produced three-dimensional position data to generate the three-dimensional data set (Fig. 8; page 19, column 1, paragraph 2 - page 20, column 1, paragraph 3). At the time the invention was made, it would have been obvious to one of ordinary to modify the apparatus of Bell by fitting a standard model to the produced three-dimensional position data to generate the three-dimensional data set as taught by Akimoto. The suggestion/motivation for doing so would have been because it would allow the creation of animation directly from the created model (Akimoto, page 16, column 2, paragraph 2).

Claim 15, Bell discloses producing three-dimensional position data using the first low resolution data set and the second low resolution data set (column 8, lines 6-61). Akimoto discloses fitting a standard model to the produced three-dimensional position data to generate the three-dimensional data set (Fig. 8, page 19, column 1, paragraph 2 - page 20, column 1, paragraph 3).

7. Claims 4, 12 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bell in view of Akimoto as applied to claim 3 and 15 above further in view of U.S. Patent No. 6,532,011 to Francini et al. (Francini).

Claim 4, Bell discloses a seeking portion for seeking corresponding points to points in the first partial image within the second original image; wherein the first part of three-dimensional data set is generated by the sought corresponding points (column 8, lines 46-61). Bell does not explicitly disclose an extracting portion for projecting high-precision areas of the standard model onto the first image and extracting the projected areas as a first partial image. Francini discloses extracting portion for projecting high-precision areas of the standard model onto the first image and extracting the projected areas as a first partial image (column 7, lines 52-60, column 5, lines 19-26; Fig. 4). At the time the invention was made, it would have been obvious to one of ordinary skill in the art to modify the apparatus of Bell by including an extracting portion for projecting high-precision areas of the standard model onto the first image and extracting the projected areas as a first partial image as taught by Francini. The suggestion/motivation for doing so would have been because it would allow the creation of models that appear realistic in static and animated conditions (Francini, column 1, lines 41-46).

Claim 12, Bell discloses a device for inputting multiple images obtained from different viewpoints (Fig. 1., column 5, lines 43-62); a converter for performing resolution conversion regarding each of the input multiple images and generating multiple images having different resolutions (Fig. 2., column 5, lines 63 - column 6, line 2); a searching unit for seeking correspondence between the images obtained from different viewpoints using low-resolution images and reconstructing low-resolution three-dimensional data of the object (column 8, lines 46-61); a correspondence

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seeking unit for seeking correspondence between the images obtained from different viewpoints using the high-resolution image regarding the areas projected on the higher resolution image and reconstructing high-resolution three-dimensional data (column 7, lines 36-49; column 8, lines 46-61); a replacing device for replacing the low-resolution three-dimensional data regarding said specific areas with high-resolution three-dimensional data of the object (column 8, lines 22-34; Fig. 7). Bell does not explicitly disclose a fitting unit for fitting a standard model to the reconstructed low-resolution three-dimensional data or a unit for projecting the specific areas specified in said standard model to an image having a higher resolution than said image based on the result of fitting. Akimoto discloses a fitting unit for fitting a standard model (Fig. 8; page 19, column 1, paragraph 2 - page 20, column 1, paragraph 3). Francini discloses a unit for projecting the specific areas specified in said standard model to an image having a higher resolution than said image (column 7, lines 52-60; column 5, lines 19-26; Fig. 4). Referring to claim 16, Bell discloses a seeking portion for seeking corresponding points to points in the first partial image within the second original image; wherein the first part of three-dimensional data set is generated by the sought corresponding points (column 8, lines 46-61). Francini discloses projecting high-precision areas of the standard model onto the first image and extracting the projected areas as a first partial image (column 7, lines 52-60; column 5, lines 19-26; Fig. 4).

8. Claims 7, 9, 10, 20 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bell (5,550,937) as applied to claims 6 and 18 above further in view of U.S. Patent No. (5,422,989) to Bell et al.

Claim 7, Bell (5,550,937) does not explicitly disclose a first memory for storing the input multiple images and a second memory for storing the converted images. Patent No. (5,422,989) to Bell discloses a first memory for storing the input multiple images (Fig. 4); and a second memory for storing the converted images (Fig. 64 column 9, lines 13-34). At the time the invention was made, it would have been obvious to one of ordinary skill in the art to modify the invention of Bell by including first and second memories as taught by Patent No. 5,422,989. The suggestion/motivation for doing so would have been because it would create a user interface for simultaneously manipulating terrestrial images obtained by a plurality of airborne sensors (Patent No. 5,422,989, column 1, lines 24-33).

Claims 9, 10, 20 and 21, Bell does not explicitly disclose wherein the data used by the construction unit is combined and stored. Patent No. 5,422,989 to Bell discloses wherein the data used by the construction unit is combined and stored (Fig. 6) column 9, lines 13-34); the data used by the constructing unit is stored separately. (Fig. 4; column 7, lines 24-43); It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the construction unit taught by Bell (5,422,989) into the method modifying of the geometry models of Bell (5,550,937) for combining and storing data, because using multiple image database (combining and storing), it would enable a user to manipulate display images in their mutually projected co-registration surface (col. 8, lines 20-23).

Response to Arguments

9. Applicant's arguments filed 11/05/04 have been fully considered but they are not persuasive, because Bell (5,550,937) teaches the extracted high precision areas (the first based image 21B and the second base image 22B are resampled (or filtered) to extract pixel data values contained within respective ones of the neighborhoods of pixels. The neighborhoods of the pixels are then translated onto the registration surface 31 (extracted high precision areas; col. 8, lines 6-21); further Bell (5,550,937) teaches multiple resolutions: lowest spatial resolution, base resolution and high resolution (figs 2 and 6; col. 5, line 55 through col. 6, line 14; col. 7, line 36 through col. 8, line 5).

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kimbinh T. Nguyen whose telephone number is (703) 305-9683. The examiner can normally be reached on Monday to Thursday from 7:00 AM to 4:30 PM. The examiner can also be reached on alternate Friday from 7:00 AM to 3:30 PM.

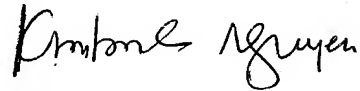
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Zimmerman, can be reached at (703) 305-9798. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should

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you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

December 22, 2004

A handwritten signature in black ink, appearing to read "Kimbinh Nguyen". The signature is written in a cursive, flowing style.

Kimbinh Nguyen

Patent Examiner AU 2671